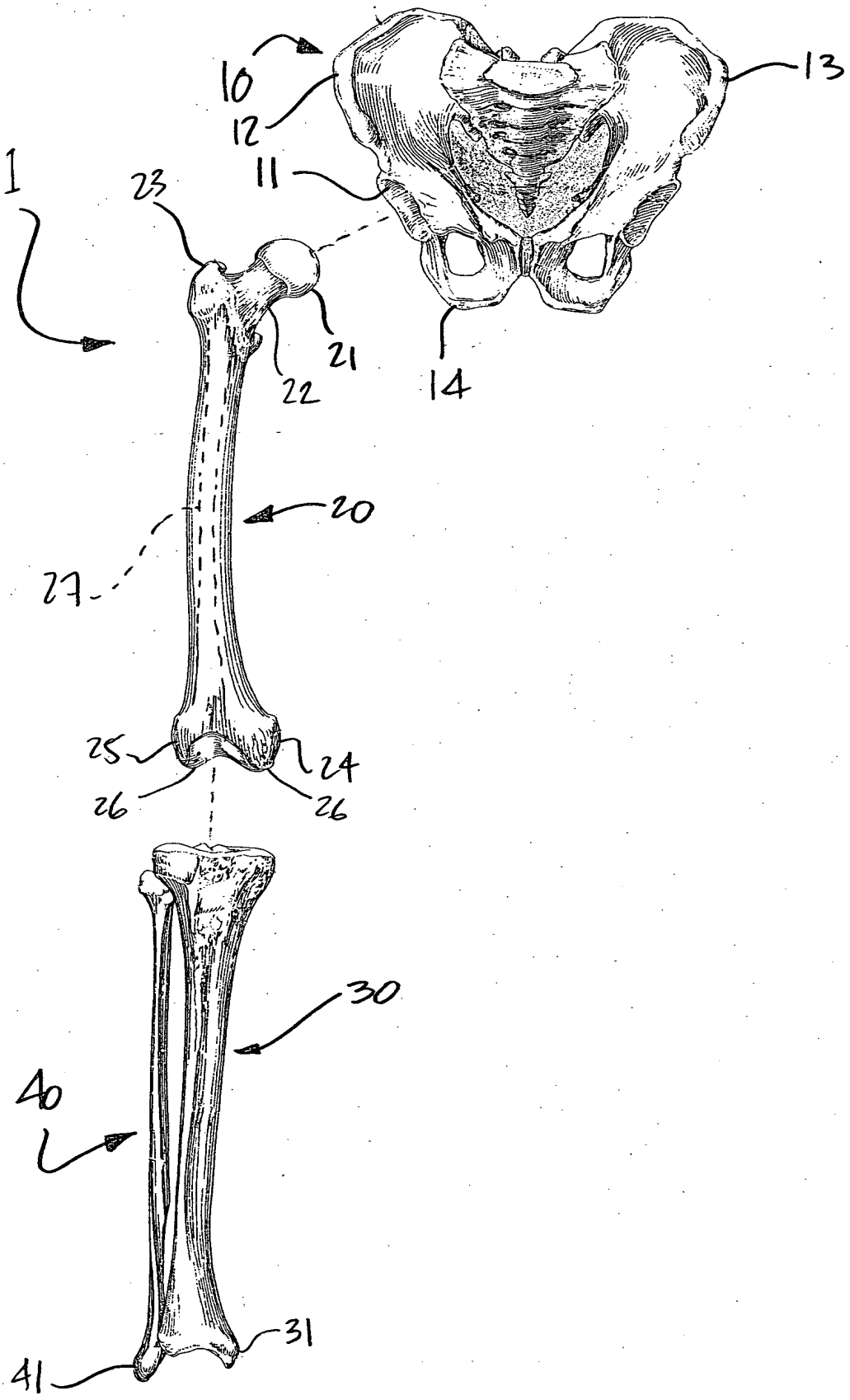

FIG. 1

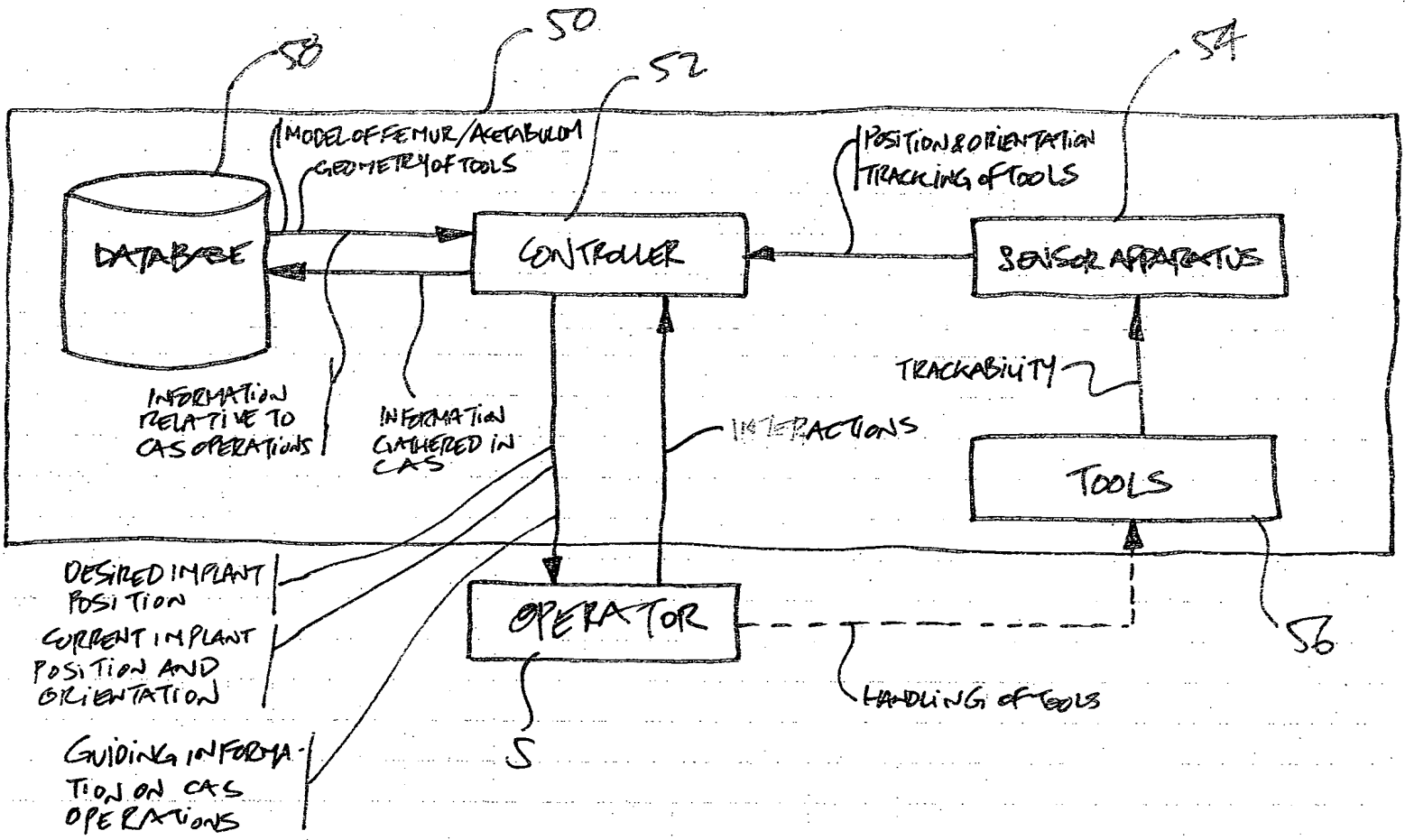
58
50
52
54
MODEL OF FEMUR/ACETABULUM
GEOMETRY OF TOOLS
POSITION & ORIENTATION
TRACKING OF TOOLS
DATABASE
CONTROLLER
SENSOR APPARATUS
TRACKABILITY
INFORMATION RELATIVE TO CAS OPERATIONS
INFORMATION GATHERED IN CAS
INTERACTIONS
TOOLS
DESIRED IMPLANT POSITION
CURRENT IMPLANT POSITION AND ORIENTATION
GUIDING INFORMATION ON CAS OPERATIONS
OPERATOR
56
HANDLING OF TOOLS
S

FIG. 2.

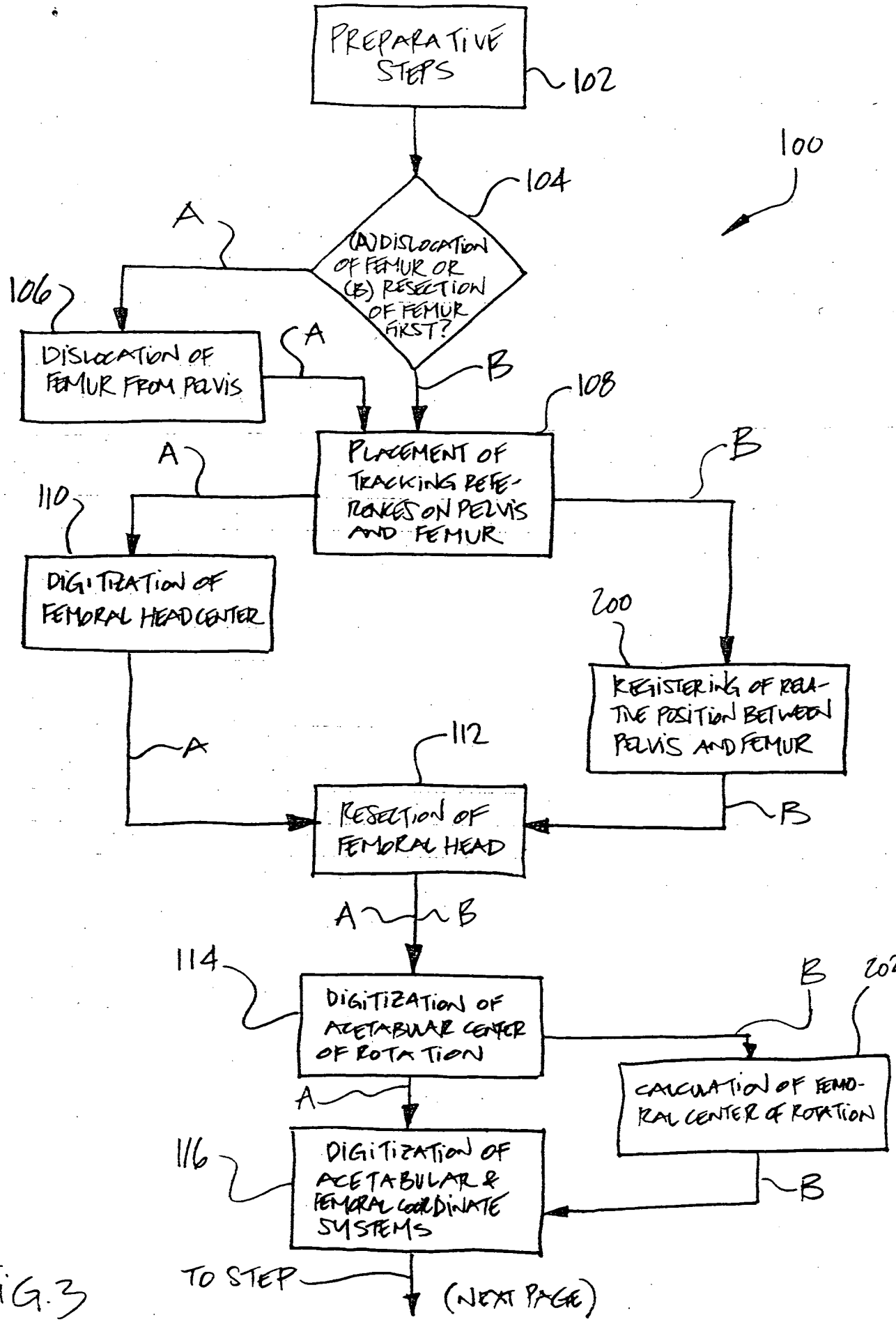
PREPARATIVE STEPS
102
100
104
(A) DISLOCATION OF FEMUR OR (B) RESECTION OF FEMUR FIRST?
A
B
106
DISLOCATION OF FEMUR FROM PELVIS
A
108
PLACEMENT OF TRACKING REFERENCES ON PELVIS AND FEMUR
A
B
110
DIGITIZATION OF FEMORAL HEAD CENTER
200
REGISTERING OF RELATIVE POSITION BETWEEN PELVIS AND FEMUR
A
112
RESECTION OF FEMORAL HEAD
B
A
B
114
DIGITIZATION OF ACETABULAR CENTER OF ROTATION
B
202
CALCULATION OF FEMORAL CENTER OF ROTATION
A
116
DIGITIZATION OF ACETABULAR & FEMORAL COORDINATE SYSTEMS
B
TO STEP (NEXT PAGE)

FIG. 3

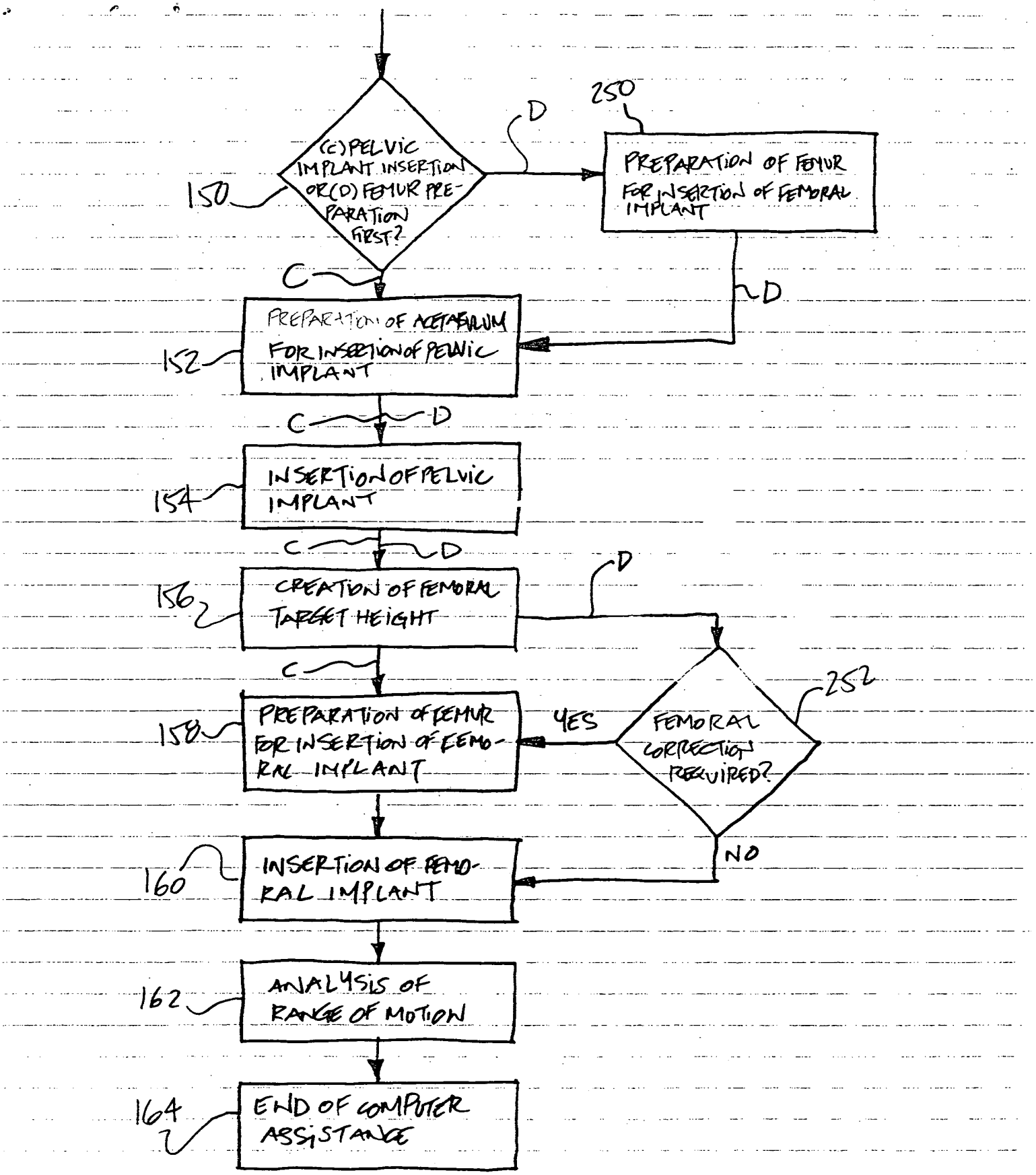
(C) PELVIC IMPLANT INSERTION OR (D) FEMUR PREPARATION FIRST?
150
D
250
PREPARATION OF FEMUR FOR INSERTION OF FEMORAL IMPLANT
C
D
PREPARATION OF ACETABULUM FOR INSERTION OF PELVIC IMPLANT
152
C
D
INSERTION OF PELVIC IMPLANT
154
C
D
CREATION OF FEMORAL TARGET HEIGHT
156
D
C
PREPARATION OF FEMUR FOR INSERTION OF FEMORAL IMPLANT
158
YES
FEMORAL CORRECTION REQUIRED?
252
NO
INSERTION OF FEMORAL IMPLANT
160
ANALYSIS OF RANGE OF MOTION
162
END OF COMPUTER ASSISTANCE
164

FIG. 3 (CONT'D)

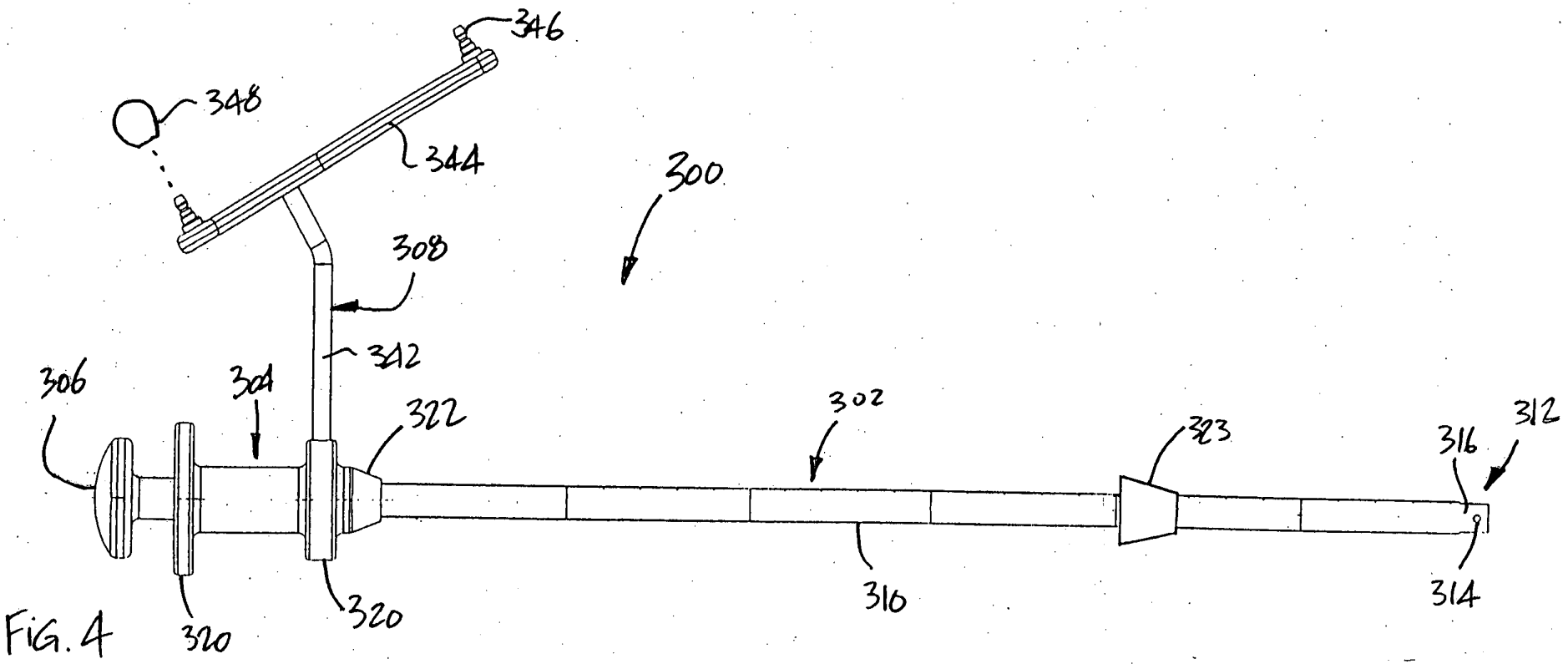
346
348
344
300
308
312
306
304
322
302
323
316
312
316
314
320
320

FIG. 4

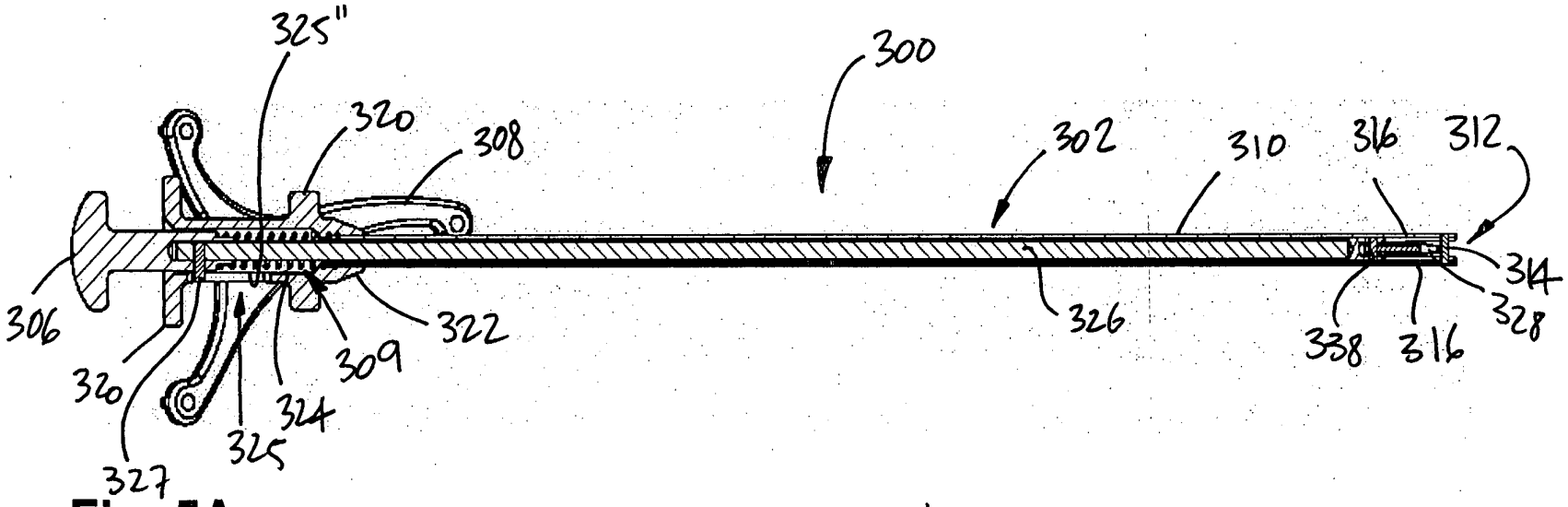
325"
300
320
308
302
310
316
312
306
322
326
314
328
320
309
338
316
324
325
327

Fig. 5A

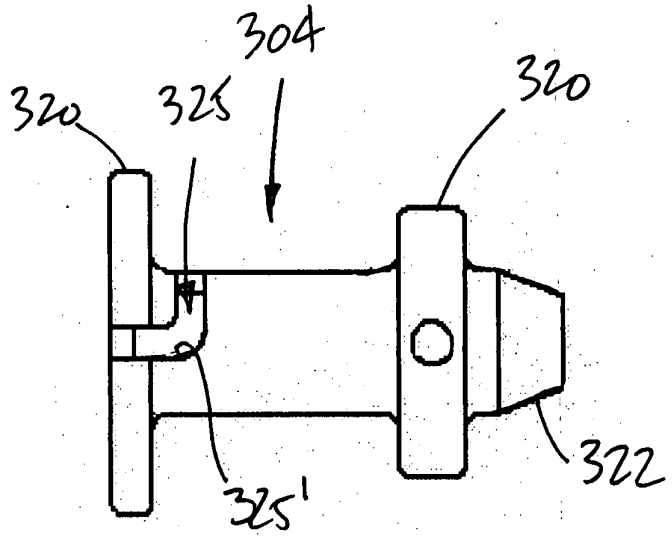
304
320
325
320
322
325'

Fig. 5B

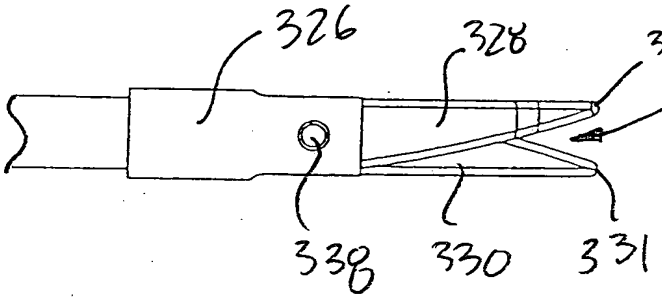

FIG. 6

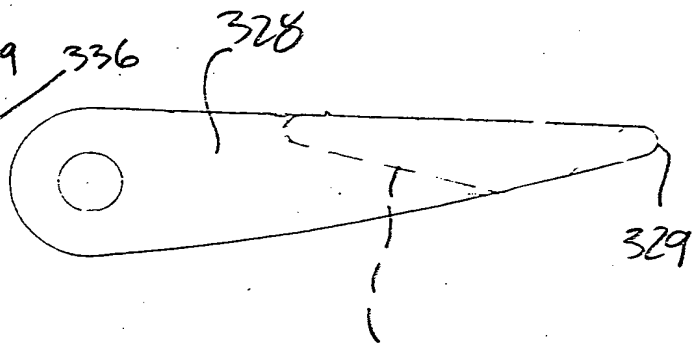

FIG. 7

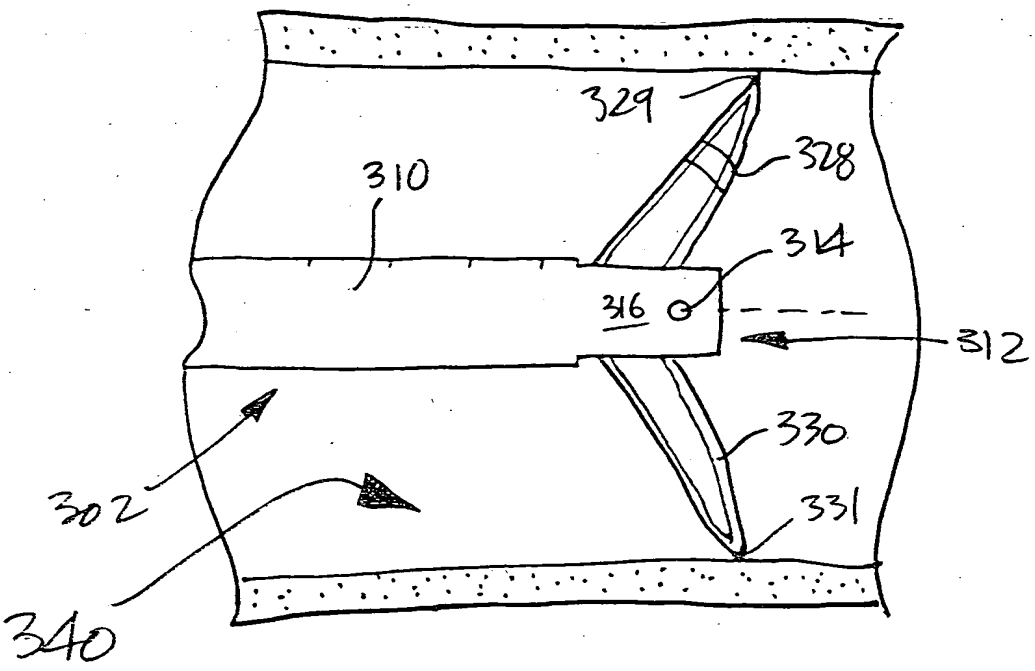

FIG 8